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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/658,902	09/10/2003	Sundararajan Sriram	TI-28564.1	3595
23494 7590 02/25/2010 TEXAS INSTRUMENTS INCORPORATED P O BOX 655474, M/S 3999 DALLAS, TX 75265				
EXAMINER				
CASCA, FRED A				
ART UNIT		PAPER NUMBER		
2617				
NOTIFICATION DATE		DELIVERY MODE		
02/25/2010		ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

uspto@ti.com

**Supplemental  
Notice of Allowability**

**Application No.**

10/658,902

**Examiner**

FRED A. CASCA

**Applicant(s)**

SRIRAM, SUNDARARAJAN

**Art Unit**

2617

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to November 30, 2006.
2. ☒ The allowed claim(s) is/are 1-5 and 25-39 (renumbered 6-20).
3. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All b) ☐ Some\* c) ☐ None of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO/SB/08),  
Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),  
Paper No./Mail Date \_\_\_\_\_
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

## DETAILED ACTION

### Response to Arguments

1. Applicant's arguments filed on November 30, 2006 with respect to claims 1-5 and 25-39 have been considered and are persuasive. The new limitations to the independent claims have not been found or suggested by prior art. The rejection of claims 1-5 has been withdrawn.

### EXAMINER'S AMENDMENT TO THE SPECIFICATION

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Mr. Ronald O. Neerings on February 19, 2010.

[Begin Audit]

IN THE SPECIFICATION:

*Please replace the paragraph beginning on page 6, line 12 and ending on line 13, with the following:*

FIG. 8 illustrates a comparison of correlation complexity and matching complexity between the prior art and embodiments of the present invention.

FIG. 9 is an example of 16 length-16 comma-free codes that may be transmitted as the tertiary synchronization code of the present invention.

*Please replace the paragraph beginning on page 6, line 17 and ending on page 7, line 14, with the following:*

Referring now to FIG. 5, there is a timing diagram of a showing a sequence of first, second and third synchronization codes of the present invention. The timing diagram includes a frame of data having a predetermined number of time slots 502,504,506. This predetermined number of time slots preferably includes sixteen time slots in each frame. Each time slot, for example time slot 502 has a duration of 0.625 milliseconds. The time slot is further subdivided into equal symbol time periods. There are preferably ten symbol time periods in time slot 502. A first synchronization code (FSC) 508 is transmitted on a primary synchronization channel during a first symbol time of the time slot. A second synchronization code (SSC) 510 is transmitted on a secondary synchronization channel during the first symbol time., of the time slot. A tertiary synchronization code (TSC) 512 is transmitted on a tertiary synchronization channel during the first symbol time of the time slot. Transmission of this tertiary synchronization code is accomplished via a circuit as in FIG. 1 having an additional multiplier circuit similar to circuit 104. This additional multiplier circuit receives the pseudo-noise (PN) code on lead 109 and a selected tertiary synchronization code and produces a modulated tertiary synchronization code.

Each of the sixteen secondary and tertiary synchronization codes within the frame are preferably different from each other. Sixteen of the comma free codes in a frame form a comma free code word. These synchronization codes are preferably sixteen comma free codes taken from a set or alphabet of seventeen 256-chip short codes. This set of seventeen codes is derived from a (16,2) Reed-Solomon code as is well known in the art. Each of the selected sixteen codes corresponds to a respective time slot of the corresponding data frame. The order of the sixteen selected codes provides 256 combinations or comma free code words, each having a minimum distance of 15. These comma free code words are sufficient to uniquely identify one of sixteen groups of sixteen long codes or scrambling codes transmitted by a base station. A preferred embodiment of the present invention transmits sixteen comma free code sequences from the set {SC.sub. 1, SC.sub.2,..., SC.sub. 17} on the secondary synchronization channel. An exemplary embodiment of these sixteen synchronization codes is enumerated in rows of FIG. 9. The present invention optionally transmits comma free code sequences from the set {SC.sub. 18, SC.sub. 19,..., SC.sub.34} on the tertiary synchronization channel as will be explained in detail.

*Please replace the paragraph beginning on page 8, line 23 and ending on page 9, line 2, with the following:*

This two-step code group identification is highly advantageous in reducing synchronization match time and complexity for expanded synchronization code group sets. When there is no TSC code, the mobile receiver need only match one of sixteen code groups and one of sixteen codes within the group for sixteen cyclic shifts of time slots within a frame. In this case, the code group match of the SSC provides frame synchronization. This yields a match complexity of  $16 \times 16$  or half the complexity of the prior art circuits having thirty-two codes per group, as illustrated in FIG. 8. Alternatively, when one of N distinct code words is detected on the tertiary synchronization channel, frame synchronization is completed.

[End Audit]

#### **Allowable Subject Matter**

3. Claims 1-5 and 25-39 (renumbered as 6-20) are allowed.

The following is the examiner's statement of reasons for allowance: The present application is a continuation of application No. 09/418,907 10/15/1999 PAT 6,665,277 which claims benefit of 60/104,445 10/16/1998. The amended independent claims presented in the present application are now narrower and more specific than the claims of application No. 10/15/1999 (now PAT 6,665,277). None of the prior art References, Nystrom et al (US Patent No. 6,185,244 B1) and Pat No. 6,665,277, teaches or suggests directly or indirectly the limitation

"if one of N distinct code words or sequences is present in the tertiary synchronization code, synchronize the frame of data using tertiary synchronization code and detect a code word transmitted on the secondary synchronization code; if one of N distinct code words or sequences is not present in the tertiary, synchronization code, synchronize the frame of data and identify code group using secondary" in claim 1, "searching for presence of a known code word in the

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tertiary synchronization code; and synchronizing the frame of data and identifying code group using the secondary synchronization code if a known code word is not detected”, in claim 28, and “identifying the primary synchronization code and using the tertiary synchronization code to provide both frame synchronization and partial synchronization code group identification.” in claim 38 along with other combinations of the claims.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled “Comments on Statement of Reasons for Allowance.”

### **Conclusion**

4. Any response to this Office Action should be mailed to:

*U.S Patent and Trademark Office  
Commissioner of Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450*

Or Faxed to:

571-273-8300.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRED A. CASCA whose telephone number is (571)272-7918.

The examiner can normally be reached on Monday through Friday from 9 to 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vincent P. Harper, can be reached at (571) 272-7922.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications

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may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/VINCENT P. HARPER/

Supervisory Patent Examiner, Art Unit 2617

/Fred A. Casca/

Examiner, Art Unit 2617